CLAIMS

Please cancel claims 11, 15, 17, and 20.

1. (Currently Amended) A ~~software controlled data replacement system for a cache, the~~ computing system ~~employing a memory region and associated class identifier and a tag replacement control indicia~~, comprising:

      ~~a replacement management table, employable to read the class identifier to create the tag replacement control indicia, wherein the class identifier is created by software; and~~

      a plurality of memory regions each having a different address range and a corresponding class identifier;

      a range register coupled to receive an address and configured to produce: (i) the class identifier corresponding to the memory region having an address range that includes the received address, or (ii) a default class identifier in the event that none of the memory regions has an address range that includes the received address;

      ~~the~~ a cache [[,]] comprising a plurality of sets ~~, employable to disable a replacement of at least one of the plurality of sets as a function of the tag replacement control indicia~~;

      a replacement management table (RMT) having a plurality of entries, wherein each of the entries corresponds to one of the class identifiers and to one of the sets of the cache, and wherein the entries of the RMT are configured to store data that define the sets of the cache that may be used to store data retrieved from each of the memory regions, and wherein the RMT is coupled to receive the class identifier produced by the range register and configured to produce a tag replacement control indicia dependent on the received class identifier, and wherein the tag replacement control indicia is indicative of the sets of the cache that may be used to store data retrieved from one of the memory regions having the received class identifier; and

      wherein the cache is coupled to receive data retrieved from one of the memory regions and the tag replacement control indicia, and configured to store the received data in one of the sets of the cache dependent upon the tag replacement control indicia.

2. (Currently Amended) The <u>computing</u> system of Claim 1, wherein the ~~memory region and associated~~ <u>class identifiers are created by software, and wherein the</u> class identifier creation software ~~further~~ comprises compiler or operating system software.

3. (Currently Amended) The <u>computing</u> system of Claim 1, wherein a set of the cache is replaced based upon a least recently used function.

4. (Currently Amended) The <u>computing</u> system of Claim 1, wherein the replacement management table uses software.

5. (Currently Amended) The <u>computing</u> system of Claim 4, wherein class identifier creation software is employable to classify an address range as a default address range.

6. (Currently Amended) The <u>computing</u> system of Claim 1, wherein the cache comprises a translation lookaside buffer.

7. (Currently Amended) The <u>computing</u> system of Claim 4, wherein class identifier generation software further comprises a direct memory access command.

8. (Currently Amended) A method of ~~determining information replacement in~~ <u>configuring replacement eligibility of at least one set in</u> a cache <u>comprising a plurality of sets,</u> <u>the method</u> comprising:

        creating a class identifier <u>for each of a plurality of memory regions having a different address range</u> by class identifier creation software;

        <u>receiving an address;</u>

        <u>using the address produce: (i) the class identifier corresponding to the memory region having an address range that includes the received address, or (ii) a default class identifier in the event that none of the memory regions has an address range that includes the received address;</u>

        ~~reading the class identifier;~~

> using the produced class identifier to create ~~creating~~ a tag replacement control indicia ~~as a~~ ~~function of the class identifier~~ through employment of a replacement management table, wherein the tag replacement control indicia is indicative of the sets of the cache that may be used to store data retrieved from one of the memory regions having the produced class identifier; and
>
> configuring the replacement eligibility of [[a]] the at least one set in [[a]] the cache as a function of the [[associated]] tag replacement control indicia.

9. (Currently Amended) The method of Claim 8, wherein the step of ~~creating~~ using the produced class identifier to create a tag replacement control indicia further comprises employing a software-managed replacement management table.

10. (Currently Amended) The method of Claim 8, further comprising replacing [[information]] data within the at least one set of the cache [[with other information]] as a function of the tag replacement control indicia.

11. (Cancelled.)

12. (Currently Amended) The method of Claim 8, further comprising discarding the tag replacement control indicia ~~if there is a hit on the cache~~ in the event data corresponding to the received address resides in the cache.

13. (Currently Amended) The method of Claim 8, further comprising the step of ~~retrieving the data~~ ~~associated with an address from the second cache if there is a hit in the second cache~~ using the received address to retrieve corresponding data.

14. (Currently Amended) The method of Claim [8] 10, ~~further comprising~~ wherein the replacing a ~~set based upon~~ is carried out using a least recently used function.

15. (Cancelled.)

16. (Currently Amended) The method of Claim [8] 10, ~~further comprising employing an algorithm bit to select an algorithm for the replacement of the eligible set~~ wherein the replacing comprises:

using an algorithm bit to select a replacement algorithm; and

using the replacement algorithm to replace data within the at least one set of the cache dependent upon the tag replacement control indicia.

17. (Cancelled.)

18. (Currently Amended) A computer program product for ~~determining information replacement in~~ configuring replacement eligibility of at least one set in a cache comprising a plurality of sets, the computer program product having a medium with a computer program embodied thereon, the computer program comprising:

computer code for creating a class identifier for each of a plurality of memory regions, wherein each of the memory regions has a different address range ~~by class identifier generation software~~;

computer code for using a received address to produce: (i) the class identifier corresponding to the memory region having an address range that includes the received address, or (ii) a default class identifier in the event that none of the memory regions has an address range that includes the received address;

~~computer code for reading the class identifier;~~

computer code for using the produced class identifier to create [[creating]] a tag replacement control indicia ~~as a function of the class identifier~~ through employment of a replacement management table, wherein the tag replacement control indicia is indicative of the sets of the cache that may be used to store data retrieved from one of the memory regions having the produced class identifier; and

computer code for configuring the replacement eligibility of [[a]] the at least one set in [[a]] the cache as a function of the [[associated]] tag replacement control indicia.

19. (Currently Amended) The computer program product of Claim 18, further comprising computer code for replacing [[information]] data within one of the sets of the cache [[with other information]] as a function of the tag replacement control indicia.

20. (Cancelled.)

21. (Currently Amended) A processor for determining information replacement in a cache, the processor including a computer program comprising:

a plurality of memory regions each having a different address range;

a cache comprising a plurality of sets;

computer code for creating a class identifier for each of the memory regions by class identifier generation software;

computer code for using a received address to produce: (i) the class identifier corresponding to the memory region having an address range that includes the received address, or (ii) a default class identifier in the event that none of the memory regions has an address range that includes the received address;

computer code for reading the class identifier;

computer code for using the produced class identifier to create [[creating]] a tag replacement control indicia as a function of the class identifier through employment of a replacement management table, wherein the tag replacement control indicia is indicative of the sets of the cache that may be used to store data retrieved from one of the memory regions having the produced class identifier; and

computer code for configuring the replacement eligibility of [[a]] the at least one set in [[a]] the cache as a function of the [[associated]] tag replacement control indicia.

Please add the following new claims:

22. (New) The computing system of claim 1, wherein the RMT is configured to store a plurality of bypass bits each corresponding to a different one of the class identifiers, and wherein each of the bypass bits is indicative of whether data retrieved from one of the memory regions having the

corresponding class identifier is to be stored in the cache, and wherein the tag replacement control indicia produced by the RMT is indicative of the bypass bit corresponding to the class identifier produced by the range register.

23. (New) The computing system of claim 1, wherein the RMT is configured to store a plurality of algorithm bits each corresponding to a different one of the class identifiers, and wherein each of the algorithm bits specifies a replacement algorithm to be used to replace data in the cache for the corresponding class identifier, and wherein the tag replacement control indicia produced by the RMT is indicative of the algorithm bit corresponding to the class identifier produced by the range register.